



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

MAY 31 1985

MEMORANDUM

SUBJECT: EPA Registration No. 464-448. Chlorpyrifos - Amended  
Use on Alfalfa. Accession #256639. RCB #1004.

FROM: Sami Malak, Ph.D., Chemist *Sami Malak*  
Special Registration Section II  
Residue Chemistry Branch  
Hazard Evaluation Division (TS-769)

TO: Jay S. Ellenberger, PM #12  
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Registration Division (TS-767)

THRU: Edward Zager, Head *EZager*  
Special Registration Section II  
Residue Chemistry Branch  
Hazard Evaluation Division (TS-769)

Dow Chemical Company is requesting amended registration of chlorpyrifos (Lorsban® 4E) allowing revised use directions on alfalfa.

Permanent tolerances are currently established for the combined residues of the pesticide chlorpyrifos (O,O-diethyl O-(3,5,6-trichloro-2-pyridyl)phosphorothioate) and its metabolite 3,5,6-trichloro-2-pyridinol in/on several raw agricultural commodities at levels of 0.05 to 15 ppm including alfalfa green forage at 4.0 ppm, alfalfa hay at 15.0 ppm; 2.0 ppm for the meat, fat and meat byproducts of cattle; 1.0 ppm for the meat, fat and meat byproducts of goats, horses and sheep; 0.5 ppm for the meat, fat and meat byproducts of hogs and poultry including turkey; 0.1 ppm for eggs; and 0.5 ppm for milk fat, reflecting 0.02 ppm in whole milk (40 CFR 180.342).

The federally-registered use on alfalfa permits 0.25 to 0.5 lb. act/A for control of corn rootworm adults (spotted cucumber beetle) and grasshoppers; 0.5 to 1.0 lb act/A for control of alfalfa blotch leafminer, alfalfa looper, alfalfa weevil larvae and adults, aphids, armyworms, cutworms, Egyptian alfalfa weevil larvae and adults, plant bugs, leafhoppers, and spittlebugs.

The required dosage is applied by aerial equipment in 2 to 5 gallons of water/A, or by ground equipment in sufficient water to ensure thorough coverage of the foliage. Label restrictions are: Do not apply more than once per crop cutting, do not cut or graze treated alfalfa within 14 days after application of 0.5 lb act/A nor within 21 days after application of rates above 0.5 lb act/A. Do not make more than 4 applications per year (Reg. No. 464-448).

The proposed use on alfalfa would permit 0.25 lb act/A for aphids control; 0.25 to 0.5 lb act/A for control of corn cutworm adults (spotted cucumber beetle) and grasshoppers; 0.5 to 1.0 lb act/A for control of alfalfa blotch leafminer, alfalfa looper, alfalfa weevil larvae and adults, armyworms, cutworms, Egyptian alfalfa weevil larvae and adults, plant bugs, leafhoppers, and spittlebugs. The required dosage is applied by aerial equipment in 2 to 5 gallons of water/A, or by ground equipment in sufficient water to ensure thorough coverage of the foliage. Label restrictions are: Do not cut or graze treated alfalfa within 7 days after application of 0.25 lb act/A, or within 21 days after application of rates above 0.5 lb/A. Do not make more than four applications per year or apply more than once per crop cutting (Reg. No. 464-448).

We note that the major difference between the registered and proposed use is imposing a 7-day PHI after applications of 0.25 lb act/A.

Residues were measured using Dow Chemical Company's method 84.4 which is discussed in connection with PP #4F3062 (memo of L. Kutney, April 24, 1984). The method entitled "Determination of chlorpyrifos and 3,5,6-trichloro-2-pyridinol in stone fruit by gas chromatography" is similar to the PAM II Method II. Method sensitivity was reported at 0.5 ppm for the parent and its metabolite. Alfalfa green forage and hay fortified with chlorpyrifos at 0.5 to 100 ppm and with its metabolite at 0.5 to 16 ppm, had recoveries quantitated at 84 to 130 percent, averaging 101 percent for the parent; and from 87 to 100 percent, averaging 93 percent for the metabolite. Recoveries for green forage and hay averaged 97 and 105 percent, respectively.

Residue data submitted reflect three field trials from CA, IL and MI in which chlorpyrifos (Lorsban 4E) was applied to alfalfa at 1.0, 1.0, 0.5 and 0.25 lb act/A to 1st, 2nd, 3rd, and 4th cutting, respectively. The pesticide was applied in 20 gallons of water using a nitrogen-powered backpack sprayer.

At 7-day PHI, the combined residues of chlorpyrifos and its metabolite 3,5,6-trichloro-2-pyridinol in/on the green forage ranged from nondetectable (<0.5 ppm) to 1.65 ppm, averaging 0.95 ppm; and that for hay ranged from 1.06 to 6.1 ppm, averaging 3.82 ppm.

We conclude that the combined residues of chlorpyrifos and its metabolite 3,5,6-trichloro-2-pyridinol in/on alfalfa green forage and hay will not exceed the established tolerances as a result of the amended use.

Conclusions and Recommendation:

The combined residues of chlorpyrifos and its metabolite 3,5,6-trichloro-2-pyridinol in/on alfalfa green forage and hay will not exceed the established tolerances as a result of the proposed use. Therefore, we have no objection to this amended registration.

cc: R.F., Circu., Reviewer, chlorpyrifos S.F., Amended Use S.F.,  
PMSD/ISR.

RDI:EZager:5/23/85: RDS:5/23/85

TS-769:RCB:SMALAK:Kendrick & Co.:RM-810:CM#2:X557-7377:5/31/85